Managing Innovation in Banking: Insights from Research of Bank-Start-up Collaboration Models

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Abstract

Collaboration between banks and fintech start-ups has become a critical driver of innovation in financial services, yet its underlying mechanisms remain insufficiently understood. Existing research on open innovation and corporate-start-up partnerships highlights benefits such as accelerated product development, but offers limited insight into how cooperation models, regulatory frameworks, and resource structures interact in practice. This gap is particularly salient in emerging markets, where institutional complexity adds uncertainty. Addressing this issue is essential because misaligned partnerships can undermine scalability for start-ups and strategic agility for banks. This study advances understanding by reframing collaboration as a governance challenge rather than a transactional exchange. Using qualitative evidence from four case studies of ING Bank Śląski's partnerships with start-ups, It explores three research questions concerning (1) the role of cooperation models, (2) the perceived influence of internal and external regulations, and (3) the significance of financing sources. Findings show that in the cases investigated, internal procedures were frequently perceived as more influential than external regulation., and business model validation seemed to be more critical than direct funding. These insights enrich theoretical perspective on innovation management and provide actionable guidance for designing effective collaboration models.

Key words

Bank-Start-up collaboration, Fintech, innovation management, open banking, qualitative research

1. Theoretical background

1.1. Innovation in banking: concept and drivers

Innovation in banking refers to the introduction of new or significantly improved products, processes, or business models that enhance the efficiency, security, and customer experience of financial services. Unlike incremental improvements, banking innovation often involves disruptive changes that reshape traditional service delivery and organizational structures [Fichter, 2015, p. 13; Naujoks, 2015, p. 10]. The concept of innovation in the paper derives from the Latin *innovatio*, meaning renewal, and implies a clear departure from previous practices, resulting in marketable solutions [Naujoks, 2015, p. 10]. In banking, innovation encompasses among others digital platforms, automated processes, and customer-centric solutions that respond to evolving expectations and technological capabilities [Ziemba, 2012, pp. 263-265].

Two primary forms of innovation dominate the sector: product innovation, which introduces new financial products or services, and process innovation, which improves operational workflows and customer interactions [OECD/Eurostat, 2018, pp. 70-78]. Both types aim to deliver greater value through usability, convenience, and cost efficiency, positioning banks competitively in a rapidly changing environment [Drucker, 1992, pp. 44-45].

Innovation in banking is propelled by several interrelated forces. Technological advancement, including mobile applications, cloud computing, and automation, as it has transformed service delivery and enabled real-time, personalized interactions [Stech, 2018, Ziemba, 2012, p. 263]. The rise of financial technology (fintech) further accelerates this trend, introducing agile solutions that challenge traditional banking models and redefine customer engagement [Nicoletti, 2017, pp. 1-19].

A second driver of innovation in banking is changing customer expectations. Customers increasingly demand seamless, omnichannel experiences and instant transactions, which forces banks to adopt digital platforms and optimize back-office processes [Niczyporuk and Talecka, 2012, pp. 55-58].

Third, regulatory developments, particularly the Second Payment Services Directive (PSD2), have opened banking systems to third-party providers through application programming interface (API) integration, fostering competition and collaboration [Nienaber, 2016, p. 20]. These changes not only enhance transparency and security but also compel banks to innovate in order to maintain market relevance.

Together, these drivers position banking as an innovation environment where success depends on integrating technology, compliance, and customer-centric approaches.

1.2. Managing innovation in banks: processes and frameworks

Innovation management in banking is not limited to generating ideas. It is a structured process that integrates creativity with organizational strategy. Effective management ensures that innovations align with business objectives and regulatory requirements while delivering measurable value to customers. Fichter defines innovation management as "the conscious design and control of innovation processes and their conditions" [Fichter, 2015, p. 8]. This perspective emphasizes planning, coordination, and monitoring across all stages of innovation, from ideation to market launch.

In banking, innovation management involves cross-functional collaboration between business units, IT departments, and compliance teams. The transition from closed innovation models, where research and development were confined to internal units, toward open and collaborative innovation reflects the growing complexity of financial ecosystems [Kotler and Trías de Bes, 2015, pp. 1-6]. Banks increasingly rely on partnerships with external actors, including fintech start-ups, to accelerate product development and enhance agility.

Several frameworks guide innovation management in banking. The Innovation Value Chain conceptualizes innovation as a sequential process comprising idea generation, idea conversion, and diffusion [Birkinshaw and Hansen, 2017, pp. 121-130]. Each phase requires specific capabilities: sourcing ideas internally and externally, securing resources for development, and scaling solutions across the organization. Weak links in this chain, such as poor idea selection or inadequate diffusion, can undermine overall performance.

The Balanced Scorecard for Innovation extends traditional performance measurement by incorporating intangible assets such as human, informational, and organizational capital [Kaplan and Norton, 2004, pp. 52-63]. For banks, this means assessing employee competencies, IT infrastructure readiness, and cultural alignment with innovation goals. Strategic readiness in these dimensions is critical for sustaining innovation initiatives.

The Stage-Gate approach, originally designed for product development, has evolved into a more agile and adaptive model suitable for dynamic environments like banking [Cooper, 2014, pp. 20-23]. Modern stage-gate systems integrate iterative testing, risk-based decision-making, and cross-functional teams to accelerate time-to-market. Complementary methodologies such as Lean Startup and

Design Thinking further enhance responsiveness by promoting rapid experimentation and customer-centric design [Nicoletti, 2017, pp. 1-19].

Together, these frameworks provide banks with structured yet flexible mechanisms to manage innovation under conditions of technological disruption and regulatory complexity.

1.3. Institutional and regulatory context in banking innovation

Regulatory frameworks have become a decisive force shaping innovation in banking. The Second Payment Services Directive of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market introduced a paradigm shift by mandating banks to provide secure access to account data for licensed third-party providers through open APIs. This regulation promotes transparency, enhances consumer protection, and fosters competition by enabling new entrants to deliver payment initiation and account information services [Loesch, 2017, pp. 4-13].

The concept of Open Banking, as a practical outcome of PSD2, transforms banks from closed systems into platforms that integrate external services. Customers benefit from consolidated account views and streamlined transactions, while banks gain opportunities to co-create value with fintech partners [Nienaber, 2016, p. 20]. However, these changes also introduce strategic and operational risks, requiring robust cybersecurity measures and compliance protocols to maintain trust and regulatory alignment.

Beyond external regulations, internal governance structures significantly influence the pace and success of banking innovation. Large financial institutions operate under complex hierarchies and risk management frameworks that often slow decision-making and product deployment. Compliance departments, while essential for regulatory adherence, can impose lengthy approval cycles that conflict with agile development practices [Niczyporuk and Talecka, 2012, pp. 55-58; Ziemba, 2012, p. 263].

To reconcile these tensions, banks increasingly adopt adaptive governance models, such as cross-functional innovation hubs and agile methodologies, which balance regulatory rigor with flexibility. ING Bank Śląski's implementation of agile method practices illustrates how organizational restructuring can accelerate product development while maintaining compliance standards [Integrated Annual Report ING Bank Śląski, 2018, pp. 6-26]. These internal adjustments are critical for leveraging external partnerships and sustaining innovation in a highly regulated environment.

1.4. Bank-Start-up partnerships as an open innovation mechanism

Open innovation in banking reflects a strategic shift from closed, internally driven development toward collaborative models that leverage external expertise and technology. Traditionally, banks relied on in-house research and development, but increasing complexity and speed of technological change have made this approach insufficient [Kotler and Trías de Bes, 2015, pp. 1-6]. By engaging with start-ups, banks gain access to specialized capabilities, reduce time-to-market, and share innovation risks. This approach aligns with Chesbrough's open innovation paradigm, emphasizing knowledge flows across organizational boundaries to accelerate innovation outcomes [Fichter, 2015, p. 8]. Definition of a startup in the paper refers to a temporary organization searching for a scalable, sustainable, and profitable business model designed to create a new product or service under conditions of extreme uncertainty [Blank and Dorf, 2014, p. 21; Ries, 2012, p. 28].

In practice, open innovation in banking is not merely a technological integration but a cultural and organizational transformation. It requires banks to adopt flexible governance structures and collaborative mindsets, enabling co-creation of value with external partners while maintaining compliance and security standards [Nicoletti, 2017, pp. 1-19].

Bank-start-up partnerships manifest in diverse models, each reflecting different strategic objectives and resource commitments. Empirical evidence indicates that banks with a clearly articulated digital strategy and a designated Chief Digital Officer (CDO) tend to establish a greater number of alliances with fintech companies, thereby enhancing knowledge flows and influencing the choice of collaboration models [Hornuf et al., 2020, pp. 1514-1518]. Three primary roles define these models: customer, business partner, and investor:

- Customer model: The bank purchases a start-up's product or service to enhance operational efficiency or expand its offering;
- Business partner model: Both parties co-develop solutions or integrate services through mechanisms such as co-branding, referral agreements, or white label arrangements;
- Investor model: The bank acquires equity stakes in the start-up, either through strategic investment or full acquisition, to secure long-term access to innovative capabilities [Bielli et al., 2015, pp. 13-15].

Each model entails distinct advantages and challenges. For example, referral partnerships offer rapid market validation but require alignment of user experience, while white label solutions demand deep technological integration and compliance checks. Strategic investments provide scalability but involve higher financial and governance risks [Rudolf, 2018, pp. 9-12]. API-enabled embedded finance models

demonstrate that integration depth and governance complexity increase with the scope of services offered, ranging from payment processing to lending and insurance, requiring banks to balance agility with compliance and security imperatives [Veldurthi, 2025, pp. 2985-2986]. Cross-sectional evidence confirms that large banks are more likely to invest in smaller fintech companies to secure control and integration, whereas smaller banks tend to favour product-related collaborations, explaining observed differences in implementation speed and resource intensity [Hornuf et al., 2020, pp. 1516-1518].

The success of bank-start-up partnerships depends on multiple factors. Organizational alignment, including shared objectives and compatible cultures, is critical for sustaining cooperation beyond initial pilots [Bielli et al., 2015, p. 11]. Regulatory compliance and internal governance flexibility influence implementation speed, as rigid approval processes can undermine agility [Niczyporuk and Talecka, 2012, pp. 55-58]. Finally, financial arrangements, whether through direct investment or revenue-sharing models, shape the incentives and resource availability for both parties. Cross-sectional evidence confirms that large banks are more likely to invest in smaller fintech companies to secure control and integration, whereas universal banks tend to favor product-related collaborations, explaining observed differences in implementation speed and resource intensity [Hornuf et al., 2020, pp. 1516-1518].

The literature establishes that banking innovation is driven by technological progress, evolving customer expectations, regulatory shifts such as PSD2, and competitive pressure from fintech companies. Frameworks like the Innovation Value Chain, Balanced Scorecard, and Stage-Gate combined with agile and Lean Startup principles offer structured approaches for managing innovation. Open Banking regulations and platform strategies further enable collaboration between banks and external actors, positioning partnerships as a key mechanism of open innovation. The API economy has become a foundational enabler of open banking and embedded finance, allowing financial institutions and fintech companies to integrate services through standardized interfaces and modular architectures. This shift emphasizes interoperability, scalability, and security as critical pillars of innovation governance in digital ecosystems [Veldurthi, 2025, pp. 2979-2981]. The emergence of Banking-as-a-Service (BaaS) and embedded finance is reshaping traditional industry boundaries, shifting the emphasis from transactional exchanges to ecosystem governance and multi-party regulatory compliance [Sambakiu, 2025, pp. 155-160; Bansal, 2024, pp. 1259-1262].

However, theory leaves critical questions unresolved. While cooperation models are described conceptually, little is known about how they operate in practice and influence start-up development. The impact of internal governance and compliance

on implementation speed remains underexplored, as does the relative importance of financial support versus business-model validation for start-ups. Finally, most evidence comes from mature markets, creating a gap in understanding partnerships within emerging banking ecosystems.

These gaps frame the research questions guiding this study. The following sections present the methodology designed to address these questions and provide empirical insights from four case studies of ING Bank Śląski's partnerships with start-ups.

2. Research method

2.1. Research objective

The study aimed to provide in-depth, empirically grounded answers to three research questions: (RQ1) what role the cooperation model plays in shaping start-up development, (RQ2) how external regulations and internal bank governance affect collaboration, and (RQ3) how the source of start-up financing influences the partnership process. The objective were exploratory and explanatory: to uncover mechanisms and contextual conditions rather than to test predefined hypotheses, consistent with the nature of qualitative inquiry [Apanowicz, 2002, p. 19].

2.2. Research design

Given the quantitative evidence on processual aspects of bank-start-up collaboration and the need to capture organizational context, the study adopts a qualitative, exploratory design combining multiple case studies with Individual in-depth interviews (IDI). Case study analysis is suited to examining real-world phenomena in situ and to drawing nuanced, context-sensitive conclusions about their causes and consequences [Brzeziński, 2004, pp. 30-33]. The cases were bounded by a common institutional setting (a single incumbent bank) and differentiated by collaboration models, enabling analytic comparison across arrangements while holding macro-context constant. The IDI technique supports the elicitation of detailed experiences, rationales, and perceptions that are difficult to obtain via surveys [Boyce and Neale, 2006, pp. 3-4].

The research population comprised start-ups collaborating with ING Bank Śląski. The design relied on purposive sampling to ensure variation in collaboration models directly relevant to the research questions [Babbie, 2004, p. 205].

The sample was selected to represent four distinct models of collaboration, chosen from a broader set of existing collaborations and ongoing pilots within the

focal bank. Data were captured through Telephone Direct Interviews (TDI) with founders or co-founders of the respective fintech companies, reflecting their early-stage experience in bank-start-up collaboration. Interview material was documented in the form of detailed notes, which were subsequently coded using a deductive approach. A critical step in the process involved validation of these notes with respondents to ensure accuracy and interpretive reliability before constructing case narratives. Based on this procedure, case studies were constructed, and consent for data use was obtained during the interviews.

2.3. Operationalization of key research aspects

The study operationalized the research questions into analytical categories that guided coding of IDIs' transcribed notes and cross-case comparison:

- Cooperation Model (RQ1) - codes for bank role (customer, business partner, investor) and specific mechanism (e.g., referral, white label, co-development, strategic investment) [Bielli et al., 2015, pp. 13-15];
- Regulatory & Governance Influence (RQ2) - codes for distinguishing external regulation (e.g., PSD2/Open Banking, sectoral compliance) and internal governance (procurement, security/IT, legal, compliance pathways) with indicators of decision-cycle length and integration depth [Niczyporuk, Talecka, 2012, pp. 55-58; Ziemba, 2012, p. 263];
- Financing & Validation (RQ3) - codes for funding sources (own capital, investors, acceleration of product-market fit, bank financing/investment) and business-model validation (evidence of product-market fit via bank channels; distribution scale effects).

2.4. Data sources and collection

Primary data were collected through IDI with representatives of four start-ups that cooperated with the bank in distinct models:

- Twisto – strategic investment (bank as investor),
- Migam – purchase of service (bank as customer),
- Placeme – referral/offer extension (bank as business partner),
- BillTech – white label integration (bank as business partner).

Each interview followed a semi-structured guide covering: (a) model and course of cooperation, (b) advantages/disadvantages of cooperation and implementation dynamics, (c) regulatory and governance issues (external and internal), (d) financing and resource structures, and (e) perceived impact on the customers and the start-up. IDIs were conducted May-July 2019, face-to-face, and documented through notes.

Fieldwork occurred in settings agreed with respondents (e.g., company offices, bank premises), reflecting the real operational context of the collaborations.

Secondary data complemented the interviews, and included publicly available documents and materials (e.g., bank communications about the cooperation models), industry reports, and scholar literature to ensure contextualization of interview claims [Apanowicz, 2002, p. 19; Brzeziński, 2004, pp. 30-33].

2.5. Data inclusion criteria

To align data with the research objective and ensure theoretical relevance, the following inclusion criteria were applied:

- Active collaboration with the focal bank during or prior to the primary data gathering period;
- Distinct collaboration model representing a different bank role (customer, business partner, investor) to enable cross-model comparison [Bielli et al., 2015, pp. 13-15];
- Access to a knowledgeable informant (founder/manager) able to speak to strategic, operational, and compliance aspects of the partnership.

The resulting sample of four examples of bank-start-up collaboration examples was assumed as satisfying the maximum variation on the collaboration dimension while remaining analytically comparable in institutional context (same incumbent bank). The purposive approach followed qualitative sampling principles that prioritize theoretical fit over statistical representativeness [Babbie, 2004, p. 205; Frankfort-Nachmias, Nachmias, 2001, pp. 193-199].

2.6. Data investigation approach

Analysis proceeded in three steps: for each start-up, interview material and secondary sources were synthesized into a structured case narrative detailing the cooperation model, implementation path, regulatory/governance interactions, and financing/validation elements. This aligned with descriptive analysis procedures for case-oriented research [Brzeziński, 2004, pp. 30-33].

Transcribed notes were thematically coded using the operational categories tied to RQ1-RQ3 (cooperation model; external vs. internal regulatory influence; financing vs. validation). Coding emphasized process evidence (e.g., approval stages, integration steps) and outcome indicators (e.g., distribution reach, credibility effects).

Cases were compared to identify convergent and divergent patterns. For example, whether internal governance systematically outweighed external

regulation in shaping implementation, or whether validation via bank channels substituted for (or complemented) direct funding in supporting start-up development. Comparative logic followed multiple-case reasoning to strengthen analytical generalization while remaining sensitive to context [Frankfort-Nachmias, Nachmias, 2001, pp. 193-199].

3. Results

3.1. What role does the cooperation model play in shaping start-up development?

Across cases, the cooperation model systematically shaped development trajectories by determining (a) market access and distribution breadth, (b) credibility signals (from simple endorsement to co-ownership/brand embedding), and (c) required organizational maturity (from light referral to enterprise-grade integration). All respondents assessed the model as important for growth. The four models identified in the material are: (1) strategic investment (Twisto), (2) service acquisition (Migam), (3) referral/offer extension (Placeme), and (4) white label integration (BillTech). The following details related to the RQ1 have been identified:

1) Strategic investment (bank as investor) - Twisto. The investment model accelerated distribution, brand credibility, and integration depth by embedding the "buy-now, pay-later" option with the bank's payment gateway and merchant network. Respondent 1 explained how the product addressed concrete customer "pains": *"Clients don't have often money to buy something online… [and] with Twisto on a mobile device, it is relatively even easier… that's why currently more transactions are made on mobile than on the computer"*. The respondent also emphasized the sales leverage of the bank's channel: *"Such an advantage is cooperation at the level of selling our service to the stores - the bank has several hundred sellers"*. At the same time, deeper ties incurred costs and strategic constraints: *"The disadvantage is that more banks may not want to invest in our product and the decision path in the bank is quite long"*. A complementary user-risk angle appeared in the adoption rationale: *"We satisfy the client's need of fear of buying on delivery that they will buy a brick"*. Identified aspects of the model implementation relate to rapid scaling and credibility gains via equity-backed integration, tempered by governance dependency and slower approvals.
2) Service acquisition (bank as customer) - Migam. The result of bank acquisition provided legitimacy and steady usage in a socially crucial niche (deaf customers). Respondent 2 highlighted the marketing and reputational

gains: *"[Cooperation] gives a marketing element, it is an added value, the service and the company are more recognizable"*. Implementation required enterprise-grade discipline and privacy-by-design: "*We do not record conversations and do not process data in the light of the GDPR… What can be problematic are banking procedures"*. Identified aspects of the model implementation relate to visibility and credibility from an anchor client, with development paced by procurement, consent, and security routines.

3) Referral/offer extension (bank as business partner) - Placeme. Referral through bank channels enabled fast market validation and credibility among small companies, without deep technical embedding. Respondent 3 underlined the validation benefit and access to segments otherwise hard to reach: *"Thanks to this, they could check the potential of the market… and normally they would not have the resources to do it*. The respondent simultaneously flagged discontinuities when users moved from the bank's site to the start-up's application: *"By switching from the bank's site to Placeme's the user experience may change"*. From the bank side, an expectation of capability fit was noted: *"A bank should thoroughly understand the specificity of a product"*. Identified aspects of the model implementation relate to low-cost validation and traffic generation, offset by weaker channel control and potential conversion frictions due to user experience breaks.
4) White label integration (bank as business partner) - BillTech. White label embedding under the bank's brand ("Moje Usługi") delivered scale, recurring usage, and customer stickiness, but demanded high integration readiness and multi-stakeholder buy-in. Respondent 4 described the organizational stretch for a small team: *"There are definitely many positive challenges… a small team needs to act quickly… prepared processes and procedures, which means that the entire company must largely change its operation to a more sophisticated one"*. The same respondent pointed to the breadth of internal alignment needed: "*Many people from the bank must be convinced that this product should be implemented"*. Crucially, the perceived primary benefit centered on validation through the bank channel rather than on funding per se: *"For us, the most important aspect is the validation of the business model with the bank"*. Identified aspects of the model implementation relate durable reach and stickiness via deep embedding, at the cost of complex, multi-departmental integration and change management.

To strengthen the link between theoretical cooperation models and empirical findings, Table 1 provides a synthetic comparison of four collaboration models with their key empirical insights.

Tab. 1. Comparison of Cooperation Models and Empirical Insights

Cooperation Model	Key Insights
Bank as an Investor - Strategic Investment	- Rapid scaling and brand credibility through equity-backed integration - High governance dependency and longer approval cycles - Financing pivotal for expansion but coupled with distribution leverage
Bank as Customer - Service Acquisition	- Legitimacy and reputational gains from anchor customer - Development paced by procurement and compliance routines - Financing relevant but secondary to credibility effects
Bank as Business Partner - Offer Extension	- Low-cost market validation and traffic generation - Limited technical integration, user experience discontinuities - Validation benefits outweigh direct funding
Bank as Business Partner - White Label Integration	- Deep embedding under bank's brand ensures scale and stickiness - High integration complexity and multi-departmental alignment - Strategic value lies in validation rather than financing

Source: own elaboration based on case study evidence.

3.2. How do external regulations and internal bank governance affect collaboration?

The analysis of four cases reveals a clear asymmetry: internal governance and compliance processes exert a stronger influence on collaboration outcomes than external regulatory frameworks. While PSD2 and GDPR were acknowledged, respondents consistently emphasized that internal procedures, such as: procurement, IT security, legal reviews, were the dominant factors shaping implementation speed and complexity. Across cases, external regulations were rarely perceived as major obstacles. Respondent 2 explained how GDPR compliance was integrated into service design without creating friction: *"We do not record conversations and do not process data in the light of the GDPR… What can be problematic are banking procedures"*. Similarly, PSD2 was mentioned as part of the broader payment ecosystem but did not emerge as a critical constraint during Twisto's integration. Respondents generally viewed statutory requirements as manageable compared to internal approval cycles. All cases highlighted internal governance as the primary determinant of collaboration dynamics. Respondent 3 described the procedural

burden even in a relatively light referral model: "There were a lot of internal rules in the bank that had to be accepted."

For deeper integration models, complexity multiplied. Respondent 4 emphasized the scale of internal coordination required for white-label implementation: *"Many people from the bank must be convinced that this product should be implemented… IT, Security, Compliance and Legal"*. This sentiment was echoed in the same interview regarding organizational adaptation on the start-up side: *"A small team needs to act quickly… prepared processes and procedures, which means that the entire company must largely change its operation to a more sophisticated one"*. Even in service acquisition, governance surfaced as a bottleneck: *"What can be problematic are banking procedure"* (Respondent 2). External regulation (PSD2, GDPR) was acknowledged but rarely described as a blocker. Most start-ups had pre-emptively adapted to these requirements. Internal governance consistently shaped timelines and resource demands. Approval chains, security audits, and compliance reviews extended implementation cycles and required start-ups to professionalize operations.

In these cases, collaboration success appeared to rely more on managing internal institutional complexity than on addressing external legal standards.. Internal governance appeared to be a major friction point in the studied cases, shaping perceived speed, scope, and cost of integration.

3.3. How does the source of start-up financing influence the partnership process?

Data analysis showed that financing influenced partnerships asymmetrically. While access to capital mattered in some cases, respondents repeatedly emphasized that validation through the bank's channel - credibility, distribution, and usage data often matched or surpassed the strategic value of funding. Below are the observed patterns and illustrative quotations.

1) Twisto – Strategic Investment: for Twisto, equity and bank-backed investment were described as "very important" for development, enabling rapid scaling and brand lift. Respondent 1 highlighted the dual benefit of capital and distribution: "*Such an advantage is cooperation at the level of selling our service to the stores - the bank has several hundred sellers"*. The financial injection was pivotal for expanding merchant reach and embedding the product in the bank's payment ecosystem.
2) Migam – Service Acquisition: Migam's survival initially relied on public grants (PARP) and early subscription revenues. The bank's purchase provided not only revenue but also reputational leverage: *"[Cooperation] gives a marketing element, it is an added value, the service and the company*

are more recognizable". Respondent 2 acknowledged that financing was important but stressed that procedural adaptation and credibility gains were equally critical: *"What can be problematic are banking procedures"*.

3) Placeme – Referral Partnership: Placeme was funded through own capital, investors, and start-up acceleration programs. Within the bank partnership, the financial aspect was considered very important, yet the referral route primarily served as a validation mechanism: *"Thanks to this, they could check the potential of the market… and normally they would not have the resources to do it"*(Respondent 3). This underscores that while money supported product building, market learning and credibility were the dominant outcomes of collaboration.
4) BillTech – White-Label Integration: for BillTech, financing from the bank was rated as "neither important nor unimportant." Respondent 4 explicitly prioritized validation over funding: *"For us, the most important aspect is the validation of the business model with the bank"*. The white-label model delivered scale and recurring usage, but its strategic value lay in proving the concept within a trusted channel rather than in direct financial support.

For Twisto and Migam capital and/or revenue streams were pivotal for scaling and operational continuity. For Placeme funding mattered, but validation through the bank's endorsement and channel was equally important. For BillTech: Validation and distribution clearly outweighed direct financing. Across cases, respondents consistently framed validation effects- credibility, distribution, and usage data as equal or superior to financial support in shaping growth trajectories. Financing interacts with, rather than substitutes for, the strategic benefits of partnering with a bank.

4. Discussion

In the cases examined, the cooperation model seemed to function as an important governance choice that influenced start-up development trajectories.. In the studied examples, equity-based and brand-embedded arrangements were associated with greater distribution scale, credibility transfer, and retention, but require enterprise-grade integration and entail governance interdependence. Lighter arrangements (referral, service acquisition) accelerate market entry and validation with lower integration costs, while offering weaker channel control and shallower lock-in. This pattern aligns with views that collaboration modes are configurable bundles of access, control, and risk allocation within open-innovation settings [Bielli et al., 2015, pp. 13-15; Nicoletti, 2017, pp. 1-19] (RQ1).

Across cases, internal bank governance related to procurement, IT security, legal, and compliance reviews proved the decisive determinant of implementation speed and scope, outweighing the direct constraints of external regulation (PSD2/GDPR). Consistent with this observation, event-study evidence suggests that short-term investor reactions to announcements of bank-fintech alliances are often negative, which may reflect market expectations for greater endogenous innovation capacity rather than reliance on external partnerships [Hornuf et al., 2020, pp. 1521-1522].This aspects detail the open-banking narrative: in practice the binding bottleneck is often institutional (approval chains, audit requirements) rather than statutory, echoing service-sector innovation research on organization-specific frictions [Niczyporuk and Talecka, 2012, pp. 55-58; Ziemba, 2012, p. 263] (RQ2).

Financing influenced partnerships asymmetrically. For some start-ups, capital and/or revenue streams (via investment or purchase) were pivotal to scale-up. For others, validation effects, such as gains in credibility, distribution, and usage data through the bank's channel, matched or surpassed the perceived value of funding. Thus, financing interacts with, rather than substitutes for, validation and distribution in shaping growth trajectories, complementing processual perspectives that locate value creation not only in resource endowments but also in conversion and diffusion along the innovation pipeline [Birkinshaw and Hansen, 2017, pp. 121-130; OECD/Eurostat, 2018, pp. 70-78] (RQ3).

The results extend open-innovation accounts in banking by reframing cooperation models as governance configurations that jointly determine: (a) market access (scale, depth), (b) credibility signal strength (endorsement, co-branding, co-ownership), and (c) capability requirements (from referral to enterprise-grade integration). This adds mechanistic specificity to existing typologies of bank-start-up collaboration [Bielli et al., 2015, pp. 13-15; Nicoletti, 2017, pp. 1-19].

While open-banking policy (e.g., PSD2) creates opportunities, the throughput of innovation is governed chiefly by internal institutional capacity, including risk management, security, legal/compliance, and procurement routines. This re-weights explanatory emphasis from policy design to process design and organizational readiness, consistent with evidence on digital banking adoption and service-innovation frictions [Ziemba, 2012, p. 263; Niczyporuk and Talecka, 2012, pp. 55-58].

Integrating resource and process views, the findings situate financing within the conversion and diffusion stages, where capital is catalytic if and only if it couples with channel validation and organizational readiness to diffuse at scale. This refines stage-gate/agile logics by elevating the evidence (adoption, conversion, retention) as

a pivotal gate criterion in financial-services innovation [Birkinshaw and Hansen, 2017, pp. 121-130; Cooper, 2014, pp. 20-23; Kaplan and Norton, 2004, pp. 52-63].

Study results reveal contextual details - platform and partnership opportunities exist, yet institutional frictions and capability lifts (security, compliance, auditability) determine realized outcomes [Loesch, 2017, pp. 4-13; Nienaber, 2016, p. 20].

Together, these contributions sharpen the theoretical aspects of managing innovation in banking: cooperation models are governance architectures with predictable trade-offs, internal governance is the proximate constraint on throughput, and in the observed cases, financing tended to create value when combined with validation and diffusion capacity. Policy and innovation environment related actions should therefore focus less on access alone and more on the institutionalization of integration standards, and capability building that compress approval cycles [Loesch, 2017, pp. 4-13; Nienaber, 2016, p. 20; Kaplan and Norton, 2004, pp. 52-63]. Recent literature on embedded finance emphasizes that sustainable collaboration requires API-first architectures, zero-trust security models, and embedded compliance mechanisms; without these, operational complexity and regulatory risk can erode the anticipated advantages of rapid implementation [Sambakiu, 2025, pp. 157-160; Bansal, 2024, pp. 1261-1262]. This reframing provides actionable guidance for scholars and practitioners seeking to move initiatives from promising pilots to scalable, compliant impact in bank-start-up partnerships [Bielli et al., 2015, pp. 13-15; Nicoletti, 2017, pp. 1-19; Birkinshaw, Hansen, 2017, pp. 121-130; OECD/Eurostat, 2018, pp. 70-78].

Conclusions

The study addressed all three research questions: RQ 1 – cooperation models were shown to be decisive in shaping start-up development paths. Resources-intensive models (strategic investment, white label) delivered scale and credibility but required deep integration and governance alignment, while less resource dependant models (referral, service acquisition) enabled rapid validation with lower demands, RQ2 – internal governance emerged as the dominant factor influencing implementation speed and complexity, outweighing external regulatory constraints such as PSD2 or GDPR, and RQ3 – financing mattered, but its strategic value was contingent on validation and distribution effects. For some start-ups, capital was critical, for others, credibility and market access through the bank channel were more influential.

From a theoretical standpoint, the study contributes by conceptualizing cooperation models as multi-dimensional governance configurations, emphasizing internal governance as the proximate constraint on innovation, and repositioning financing within the conversion and diffusion stages of the innovation value chain. These findings complement recent perspectives on digital transformation in banking, linking cooperation models with API-driven architectures and Banking-as-a-Service frameworks, which require governance flexibility and integration capability alongside financial resources. They also align with evidence that embedded finance and open banking ecosystems redefine collaboration beyond transactional exchanges, emphasizing orchestration of multi-party partnerships as a source of competitive advantage.

This research adds three non-overlapping insights to the theoretical discourse:

1) Governance architecture perspective: cooperation models should be conceptualized as multi-dimensional governance configurations, not mere transactional modes, because they jointly determine access, credibility, and capability requirements;
2) Institutional bottleneck emphasis: the findings reweight the innovation narrative from external regulation to internal governance as the proximate constraint on throughput in banking innovation;
3) Financing as a coupled mechanism: financing creates value when integrated with validation and diffusion stages, refining resource-based views with processual logic from the Innovation Value Chain.

The study results in managerial applications for banks in domain of collaboration with start-ups: (a) treat cooperation models as strategic levers - match model choice to innovation goals (scale vs. validation), (b) streamline internal approval pathways through cross-functional innovation hubs and standards, (c) incorporate channel validation metrics into stage-gate criteria alongside financial KPIs.

Managerial applications for start-ups are as follows (a) align model choice with organizational readiness and growth objectives, (b) prioritize evidence of problem-solution fit and scalability in bank channels over funding requests, (c) prepare for capability uplift (security, compliance) when pursuing deeper integration models.

This study is not without limitations. The research was conducted in 2019, before major shifts in banking technology and regulation. While this timing may limit direct applicability to current conditions, it offers a valuable baseline for understanding early-stage open-innovation practices. The single-bank setting and small, purposive sample constrain generalizability, and reliance on single informant interviews introduces potential bias.

Since 2019, banking has undergone significant transformation, creating new research opportunities. Future studies should explore how partnerships adapt to AI-driven personalization, banking-as-a-service type of solutions, investigate governance and risk-sharing in embedded finance, and assess how cloud-based architectures and security requirements reshape integration costs and approval cycles. Given the structural nature of the transition toward embedded finance and BaaS, future research should empirically assess the implications of these models for financial stability, market competition, and consumer protection, and develop governance maturity metrics tailored to bank-fintech partnerships. Future research should examine how API-based architectures support the expansion of open banking and embedded finance, focusing on their role in improving interoperability, security, and scalability across financial ecosystems. Additional research could examine sustainability and ESG-linked innovation as drivers of cooperation models.

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Zarządzanie innowacjami w bankowości: wnioski z badania modeli współpracy banku ze start-upami

Abstrakt

Współpraca pomiędzy bankami a start-upami fintech stała się kluczowym czynnikiem napędzającym innowacje w usługach finansowych, jednak jej mechanizmy pozostają niewystarczająco poznane. Dotychczasowe badania nad otwartymi innowacjami i partnerstwami dojrzałych przedsiębiorstw ze start-upami wskazują na korzyści, takie jak przyspieszenie rozwoju produktów, lecz dostarczają jedynie częściowych wyjaśnień dotyczących roli modeli współpracy, ich ram regulacyjnych oraz zaangażowanych zasobów organizacyjnych. Luka ta jest szczególnie istotna na rynkach wschodzących, gdzie złożoność instytucjonalna zwiększa niepewność współpracy w ekosystemie innowacji. Zrozumienie tego problemu jest istotne, ponieważ niedopasowane partnerstwa mogą ograniczać skalowalność start-upów i elastyczność strategiczną banków. Badanie pogłębia wiedzę o modelach współpracy środowiska bankowego ze start-upami, ujmując je jako wyzwanie w zakresie ładu organizacyjnego. Wykorzystując dane jakościowe z czterech studiów przypadku dotyczących współpracy ING Banku Śląskiego ze start-upami, artykuł eksploruje pytania badawcze dotyczące roli modelu współpracy, znaczenia regulacji wewnętrznych i zewnętrznych oraz źródeł finansowania wdrożeń i rozwoju. Wyniki wskazują, że w analizowanych przypadkach procedury wewnętrzne były postrzegane jako bardziej wpływowe niż regulacje zewnętrzne, a walidacja modelu biznesowego w środowisku bankowym może mieć większe znaczenie niż dostęp do finansowania przez start-up. Zidentyfikowane obserwacje poszerzają perspektywę teoretyczną zarządzania innowacjami i dostarczają praktycznych wskazówek dotyczących projektowania dopasowanych modeli

współpracy.

Key words

współpraca Bank-Start-up, Fintech, zarządzanie Innowacjami, otwarta bankowość, badania jakościowe